ABSTRACT

An image recovery algorithm that recovers completely lost blocks in an image/video frame using spatial information surrounding these blocks. One application focuses on lost regions of pixels containing textures, edges and other image features that pose problems for other recovery and error concealment algorithms. The algorithm is designed to be applied once on each of n layers and does not require any complex preconditioning, segmentation, or edge detection steps. The layers are filled with an initial value and a threshold is set. One layer at a time, overcomplete transforms are evaluated over that layer, and transform coefficients are selectively thresholded to determine a set of transform coefficients that have absolute values below the threshold. A system of linear equations is constructed from which the missing data elements in that layer are determined. Utilizing locally sparse linear transforms in an overcomplete fashion, good PSNR performance is obtained in the recovery of such regions.